

APPENDIX C

Visual Impact Assessment
Vallier Design Associates, Inc.

VISUAL IMPACT ASSESSMENT

Chevron Richmond Refinery Long Wharf Maintenance and Efficiency Project

Chevron Corporation
City of Richmond
County of Contra Costa, California

Vallier Design Associates, Inc.
October 2015

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Table 1.	Project Summary
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Purpose of Study

The purpose of this visual impact assessment (VIA) is to evaluate and document potential visual impacts anticipated to occur as a result of the proposed Richmond Refinery Long Wharf Maintenance & Efficiency Project (LWMEP or Project) and suggest design features to lessen any negative impacts that are identified. Visual impacts are demonstrated by documenting the existing conditions at the project site, determining the degree of change that would occur with the Project, and predicting how the affected viewer would respond to or perceive the changes.

Project Description

The Project site is located in the San Francisco Bay just south of the Richmond Bridge and west of Point Richmond, California. There are a number of different land uses in the vicinity of the Project site: to the north is the Richmond-San Rafael Bridge (also known as John T. Knox Freeway/Interstate 580); to the east and south are hillside residences and a regional park as well as a few small pocket parks. The Richmond Long Wharf (Wharf) is completely surrounded by water except for the causeway where it connects to the land. The Wharf operates under a lease agreement with the California State Lands Commission, and is used to offload crude oil from vessels into storage tanks as well as for loading refined petroleum onto vessels.



Figure 1: Project Site and Surroundings

Aerial image courtesy of Google Earth

The Project is necessary to bring the Wharf into compliance with current the California Building Code Section 31F (Marine Oil Terminal Engineering and Maintenance Standards or MOTEMS) for compliance with seismic standards; to increase reliability of the existing equipment; and to improve operational efficiency.

Project Background

The Chevron Long Wharf was originally constructed between 1945-1947; the extent of the original construction was limited to the Main Wharf and the Causeway. Over the years, changes have been made to update or repair the existing structure. In the process, some of these changes have increased the overall size of the structure, bringing it to the size and configuration that it is today.

Project Location and Setting

The Project location and setting provides the context for determining the type and degree of changes anticipated to be made to the existing visual environment. The terms *visual character* and *visual quality* are used to describe the visual environment.

Unlike most study sites which may be immediately adjacent to another land use, the Wharf is physically separated from other land uses by virtue of it being surrounded by water. The view across the water to the RLW is how the viewer observes the structure of the Wharf and its docked vessels.

The Wharf consists of the 4,200 foot-long Causeway that juts out from the land in a southerly direction. Perpendicular to the Causeway are the Berths which extend 3,480 feet, from end to end. Because the Wharf is mostly a flat structure at the surface of the water, it is less conspicuous than the larger tanker vessels that dock there. There are, however, some permanent structures associated with the Wharf that extend anywhere from 10 feet to 78 feet above the water, these include Marine Loading Arms, cranes, and fire monitors.



Figure 2: Chevron Richmond Long Wharf

Aerial image courtesy of Google Earth

Permitting and Approval Requirements

Chevron will need to obtain permits and approvals from the following entities before proceeding with work on the Project:

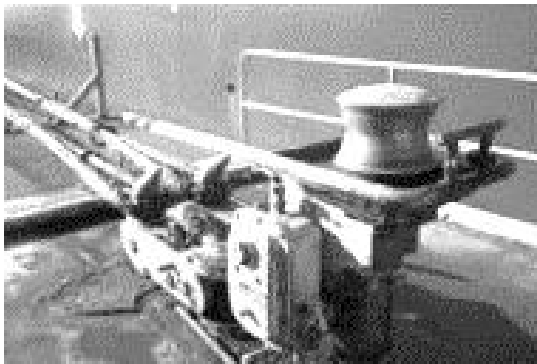
Agency	Permit, Approval or Consultation
California Regional Water Quality Control Board (RWQCB)	Clean Water Act Section 401 Water Quality Certification
United States Army Corps of Engineers (USACE)	Clean Water Act Section 404 – Nationwide Permit #3 (maintenance)
California Department of Fish and Wildlife (CDFW)	California Endangered Species Act – Incidental Take Permit
National Marine Fisheries Service (NMFS)	Biological Opinion for listed fish species
National Marine Fisheries Service (NMFS)	Marine Mammal Protection Act – Incidental Harassment Authorization
Bay Conservation and Development Commission (BCDC)	Amendment to Refinery Long Wharf Permit No. M1987.015

Table 1: Required Environmental Permits and Approvals

Construction Activities

Construction activities for the Project would consist of pile driving, installation of new or upgraded cranes, elevated fire monitors, gangway towers, standoff fenders, barrier pile clusters, and mooring dolphins. Construction activities will take place at Berths 1-4 only. No work will occur at Berths 5, 7, 9, 11, and A/B. Viewed all together, Project construction is relatively minor; most of the work involves upgrading existing equipment.

The following photographs show examples of items discussed in the text, they are provided to give the reader an idea of how some of the elements might look.



Mooring Hook



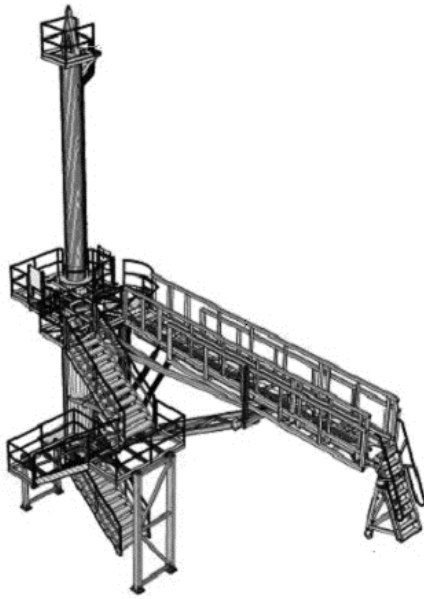
Fenders



Cranes



Existing gangway at Berth 4 with a catwalk leading to a dolphin with fenders.



Gangway with raised fire monitor



Marine loading arms

Project Scope Summary

Scope	Berth 1	Berth 2	Berth 3	Berth 4
Vessel Access Gangways	Replace	Add	Add	N/A
Fire Monitor	Add 1 new	Add 1 new	Add 1 new	N/A
Dolphins/ Hooks	Add: -1 new 24' x 20' hook dolphins -1 new 24' x 25' breasting dolphin -1 new 13' x 26' breasting point with standoff fenders	Replace 1 bollard with 1 hook	N/A	Add 2 new 36' x 20' dolphins with standoff fenders (two per dolphin)
Fenders	Add 2 new standoff fenders	Add 4 new standoff fenders	N/A	Add double fenders
Cranes	N/A	Replace: -1 auxiliary crane -1 vapor crane -1 main hose crane	N/A	N/A
Structural Retrofit	N/A	N/A	N/A	Seismic retrofit of loading platform Add 4 barrier pile clusters
Catwalk	Replace and reconfigure existing catwalk	N/A	N/A	Install 2 new catwalks for access to dolphins

Table 2: Project Summary

Study Method

The following steps were taken to assess the Project and its potential visual impacts:

- Define the project location and setting
- Identify visual assessment areas and key views
- Analyze existing visual resources
- Describe project alternatives
- Determine anticipated changes and viewer response
- Assess the visual impacts of alternatives
- Propose mitigation measures to offset visual impacts

To determine the potential effects of the Project on the visual environment, a site investigation was made and notes and photographs were taken. The site visit and photographs were then used to determine the existing scenic value of the visual resources, both adjacent to and within the Project area.

Visual Assessment Areas and Key Views

For the purposes of this study, the Project site was divided into a series of key views or visual assessment areas. Each key view has its own visual character and quality. For this Project, the following key views chosen are:

View No.	Location	Distance to Project Site
1	View from the Richmond-San Rafael Bridge overlook	+/- 3,330 feet
2	View from the residential neighborhood at the northern end of Western Drive	+/- 4,770 feet
3	View from the residential neighborhood on Clarence Street	+/- 5,470 feet
4	View from the beach at Keller Beach Park	+/- 6,480 feet
5	View from the end of the dock at Ferry Point	+/- 6,700 feet

Table 3. Key Views Summary



Figure 3: The Richmond Long Wharf and Key Views

For the residential viewers who are physically closest to the Wharf, the character of the view out to the Wharf is industrial in nature. As you get further away from the Wharf, viewers such as the residents on the hillside looking out to the Bay, have a less concentrated view of the Wharf and its structures and have an overall wider view of the Bay with the Marin hills in the background. For viewers from the Keller Beach Park and the Ferry Point dock, the Richmond-San Rafael Bridge is more visually dominant than the structure of the Wharf.

Visual Quality and Visual Character

The assessment of resource changes is done through an analysis of existing conditions, a determination of how improvements may impact the visual resources of the site, and proposed design features are recommended to offset the anticipated impacts. An important part of the process

is to define both the *visual character* and *visual quality* of the Project site as experienced by the public from surrounding viewpoints.

When evaluating the visual quality of a site, the following concepts are considered:

- **Vividness** – Vividness refers to the degree to which the impression of the landscape is memorable. In particular, how contrasting landscape elements create a distinct visual pattern.
- **Intactness** – Intactness refers to the integrity of the visual order of the natural and built environment, as well as the degree to which it is free of visual intrusion.
- **Unity** – Unity refers to the extent to which visual resources combine to form a coherent, harmonious pattern.

In judging visual quality, all three of these concepts must be considered in combination.

The visual character of the Project site is fairly uniform but varies somewhat depending on the view. The predominant character of the setting is of a commercial wharf structure in the Bay adjacent to a hillside residential neighborhood to the east and bounded by a bridge (a major vehicular thoroughfare) to the north.

VIEW ONE



Figure 4: View 1 – View from the Richmond-San Rafael Bridge

The scene from View 1 is predominantly of the water and the hills of Marin in the background. The Wharf structure is visible mostly as a black line at the surface of the water. Vessels docked at the berths stand out because of their size, but at this distance, the finer/thinner structures of the Wharf are not very discernable. The visual quality of this view is high because of the natural beauty of the Bay in combination with the hills in the background.

VIEW TWO



Figure 5: View 2 – View from Western Drive

In View 2 the scene is somewhat more industrial in character than natural. The Long Wharf dominates the view in the foreground. The structure of the main causeway and its support structure are clearly visible. Any vessels docked at the Wharf partially obscure the hills in the background. The visual quality in this view is medium.

VIEW THREE



Figure 6: View 3 – View from Clarence Street

View 3 is predominantly a view of the San Francisco Bay with Mount Tamalpais in the background. From this angle, the structure of the Long Wharf and the vessels moored at it stands out in the foreground. The visual quality in this view is medium.

VIEW FOUR



Figure 7: View 4 – View from Keller Beach

In View 4, the viewer is most aware of the San Francisco Bay in the foreground and Mount Tamalpais in the background. The structure of the Long Wharf appears as a thin black line on the surface of the water. Unless there are vessels moored at it, the viewer might not notice the Long Wharf at this distance. In contrast, the Richmond-San Rafael Bridge is clearly visible in the distance. The visual quality in View 4 is high.

VIEW FIVE



Figure 8: View 5 – View from Ferry Point

In View 5 the San Francisco Bay dominates the view. The hills of Richmond are visible to the right of the scene and the hills of Marin are visible to the left and in the distance. From this angle, the Long Wharf and the Richmond-San Rafael Bridge are lined up so that it is hard to tell if the line you see at the surface of the water is part of the Long Wharf structure or part of the bridge. The vessels moored at the berths are the only real indication that the wharf is there. The visual quality in this view is medium-high.

Viewers and Viewer Response

The viewers referred to in this analysis are those individuals whose views (Views 1 through 5) will be changed in some way as a result of the Project.

Viewer's responses to changed conditions are influenced by their exposure to the site and the changed conditions. Viewer exposure is affected by three things: location, quantity, and duration. Location refers to the position of the viewer relative to the object. Quantity refers to the number of viewers who see the object. Duration refers to the length of time the viewer is exposed to the object.

A further delineation of viewer response has to do with viewer sensitivity. Viewer sensitivity is strongly related to visual preference. Several factors affect viewer sensitivity, such as: awareness, activity, and local values. Visual change in the landscape heightens viewer awareness. For example, a drive through a familiar suburban neighborhood would not be experienced with the same level of

awareness as a drive by the same individual through a redwood grove. Local values also affect viewer response through expectations and aspirations. For example, if a landscape has a historical significance to a community, then any change to it is seen as a threat.

Types of Viewers

The types of viewers considered for this study are individuals viewing the landscape as pedestrians, residents, and vehicular drivers.

Visual Impact

The evaluation of visual impact depends upon the degree of change, the scenic quality of the area that is changed, and the sensitivity of the viewers who experience the change. Impacts can be short term, such as the disturbance of construction, or long term such as the visual presence of a large visually imposing retaining wall. The amount and kind of change affecting the visual resource considered in combination with the viewer response determines the level of visual impact.

Below is an evaluation of project-related changes in Views 1 through 5. Before and after images are presented for each view followed by a narrative description of the features that would be seen. In all cases, Project features result in relatively minor changes to the views.

Impact to Viewers – View 1



Figure 9: View 1 Area of Change



Figure 10: View 1 Simulation

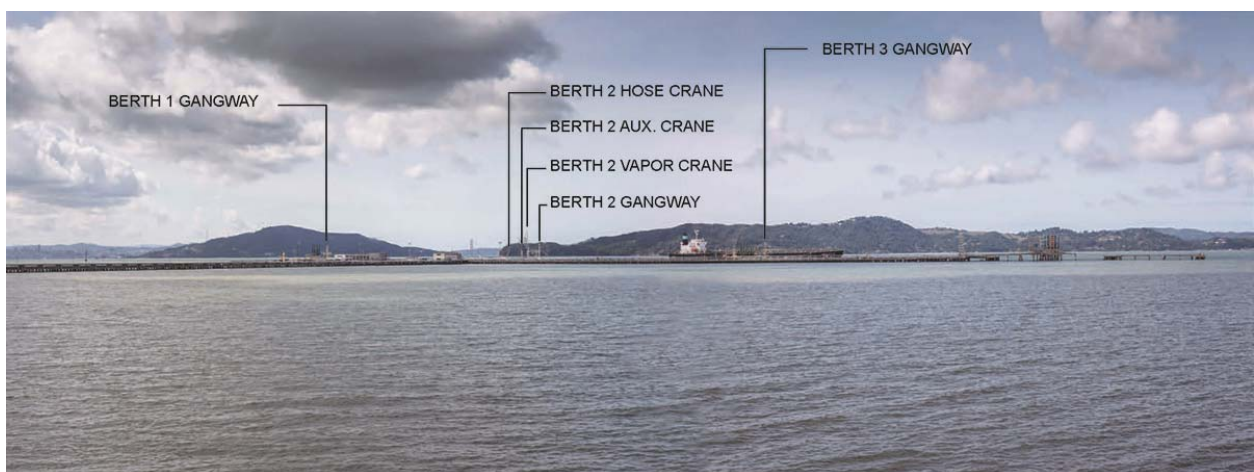


Figure 11: View 1 Labeled Simulation

The viewers from this viewpoint are people driving across the bridge and sightseers stopping at the overlook. For those individuals driving across the bridge, the scene of the Wharf passes by pretty quickly and is partially obstructed by the bridge structure itself. For the sightseers, this would be a somewhat sensitive view. However, to the casual viewer, the changes here would be difficult to recognize from this vantage point. Because the distance across the water (approximately 3,330 feet) to the Wharf is so great from this viewpoint, the only real change a viewer might see are changes to the cranes and the addition of fire monitors. There will be new fire monitors at Berths 1, 2 and 3.

Impact to Viewers – View 2



Figure 12: View 2 Area of Change



Figure 13: View 2 Simulation

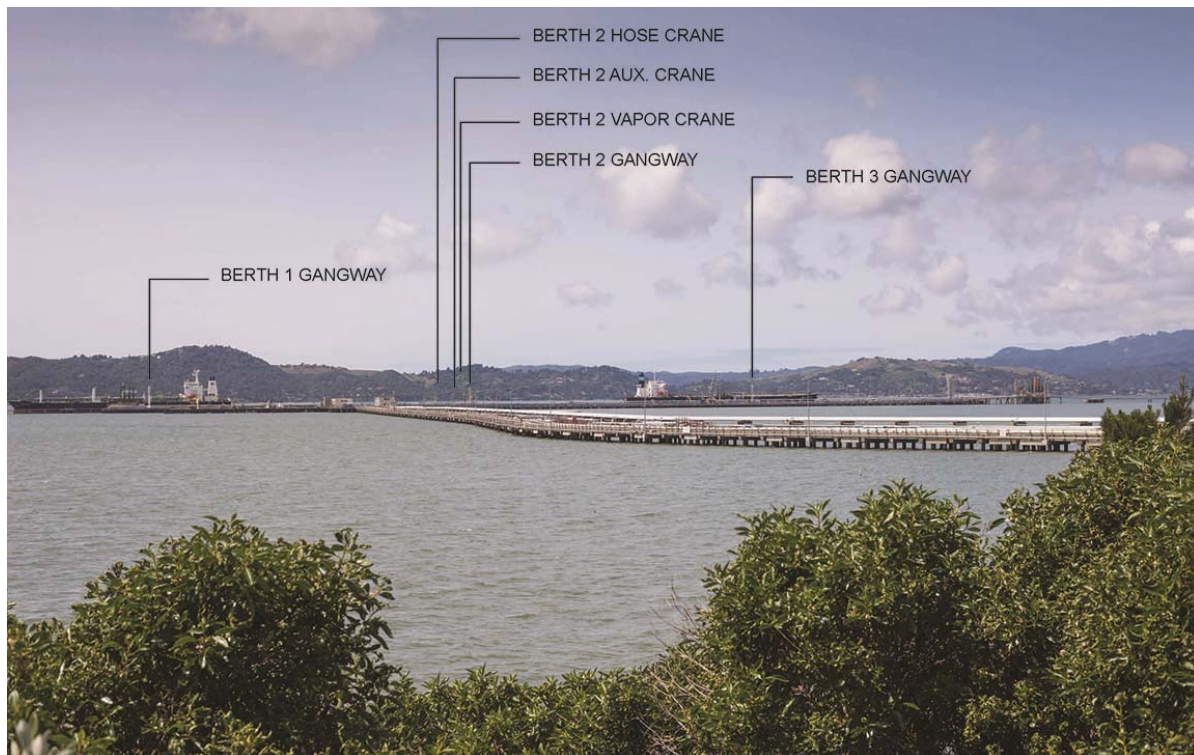


Figure 14: View 2 Labeled Simulation

Because the distance from the shore to the Wharf appears shortest at this viewpoint (approximately 4,770 feet), this is the most sensitive view of the five views in this study. Viewers from this viewpoint would be primarily residents of the Point Richmond neighborhood. The addition of the new gangway tower for the fire monitor at Berth 3 will be somewhat apparent in this view but, because it stands alone rather than in a group, the visual impact will be minimal.

Impact to Viewers – View 3



Figure 15: View 3 Area of Change



Figure 16: View 3 Simulation

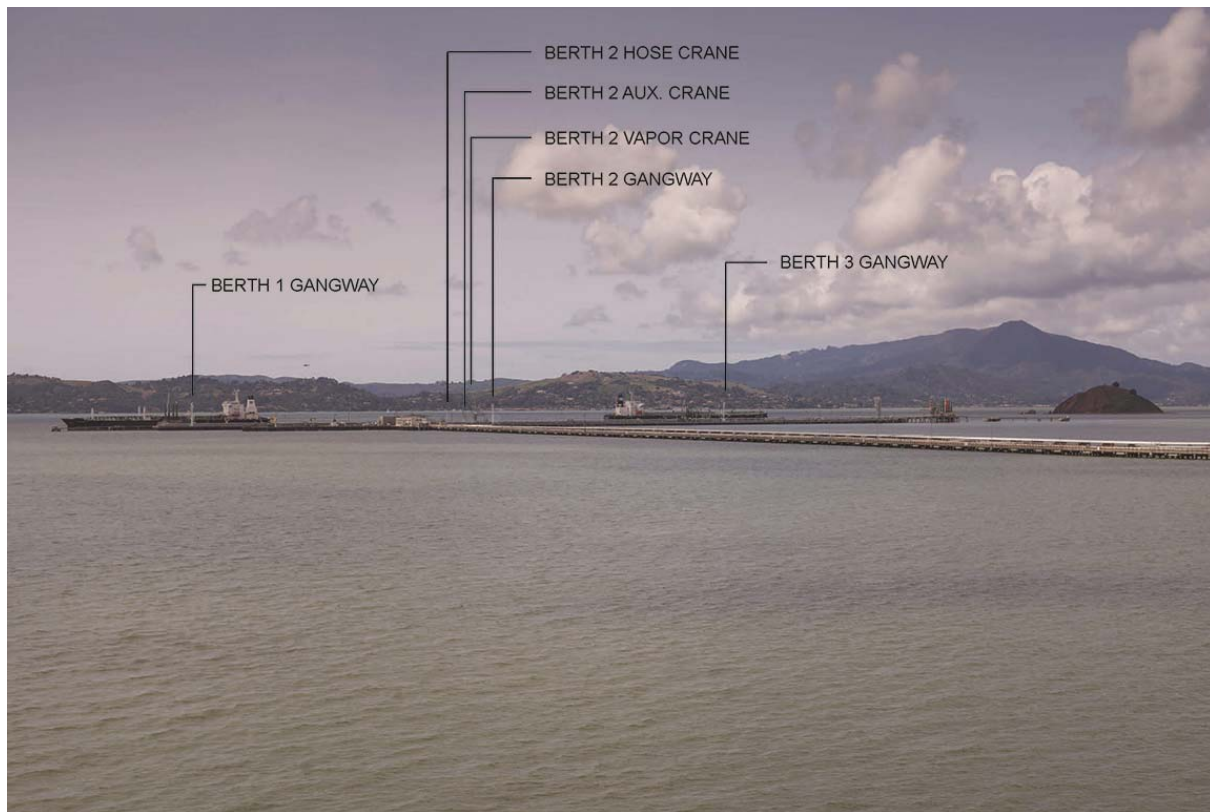


Figure 17: View 3 Labeled Simulation

The viewers from this viewpoint are primarily residents of and visitors to the hillside neighborhood. From View 3 on Clarence Street, the viewer is higher in elevation on the side of the hill than in Views 1 and 2. The approximate distance between the viewer and the wharf here is 5,470 feet. The higher elevation means that the viewer looks at the wharf from a perspective that is somewhat looking down on and from the side simultaneously. Because of this vantage point, the building on the A/B Berth stands out a little more than when it is viewed from a more straight-on angle. Similar to View 2, the changes that are proposed are mostly in-kind replacements and will not be significant. The new Berth 3 gangway tower and elevated fire monitor will stand at 50 feet above the deck. Because it is a single structure, rather than a mass, the new tower will be harder for viewers to recognize, given the distance from the viewpoint to the Wharf.

Impact to Viewers – View 4



Figure 18: View 4 Area of Change



Figure 19: View 4 Simulation

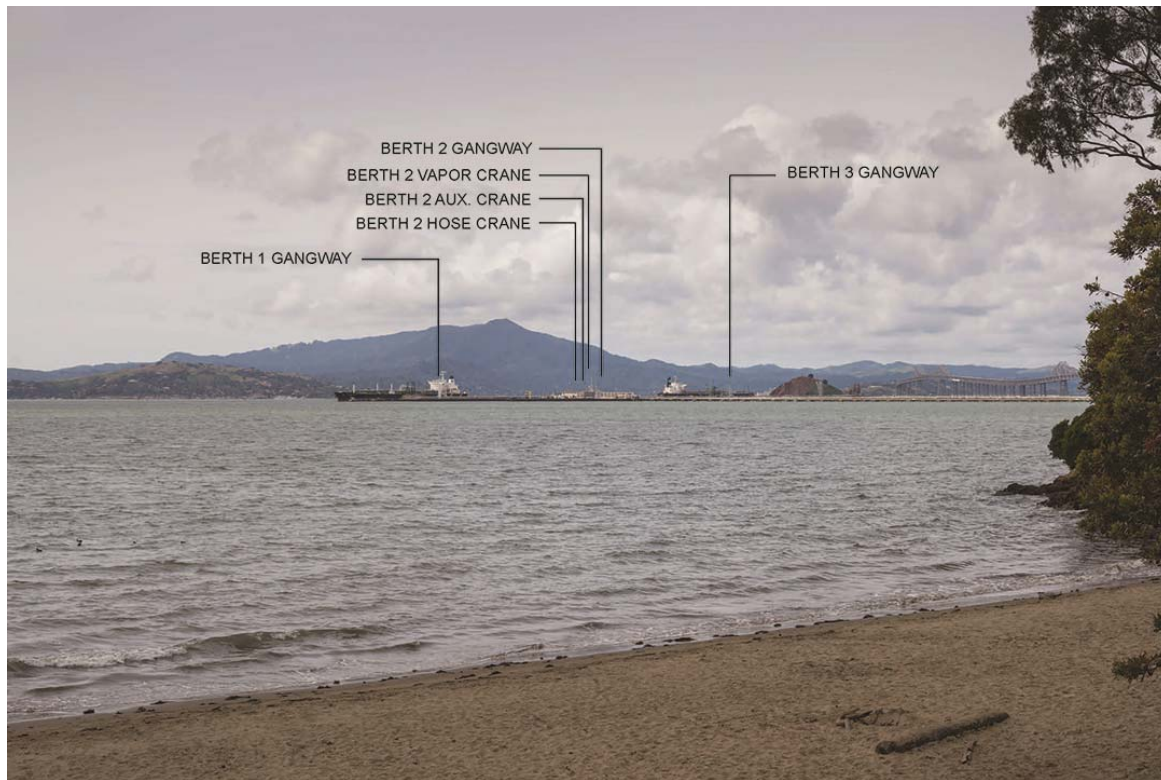


Figure 20: View 4 Labeled Simulation

In View 4, standing on the beach the viewer is almost level with the structure of the Wharf. The Wharf is visible mostly as a black line at the surface of the water. From this angle, the building on the A/B Berth is visible, but what stands out most are any vessels that are docked at the berths. To the north, the structure of the Richmond-San Rafael Bridge is prominent in this view. It is unlikely that viewers would notice any of the changes from this distance. Possibly viewers might notice the addition of the new fire monitor, but more than likely, they would not. Viewers to this viewpoint are individuals of the neighborhood but also people who come from outside the neighborhood to picnic and enjoy spending time at the beach. The distance to the wharf from this viewpoint is approximately 6,480 feet.

Impact to Viewers – View 5



Figure 21: View 5 Area of Change



Figure 22: View 5 Simulation

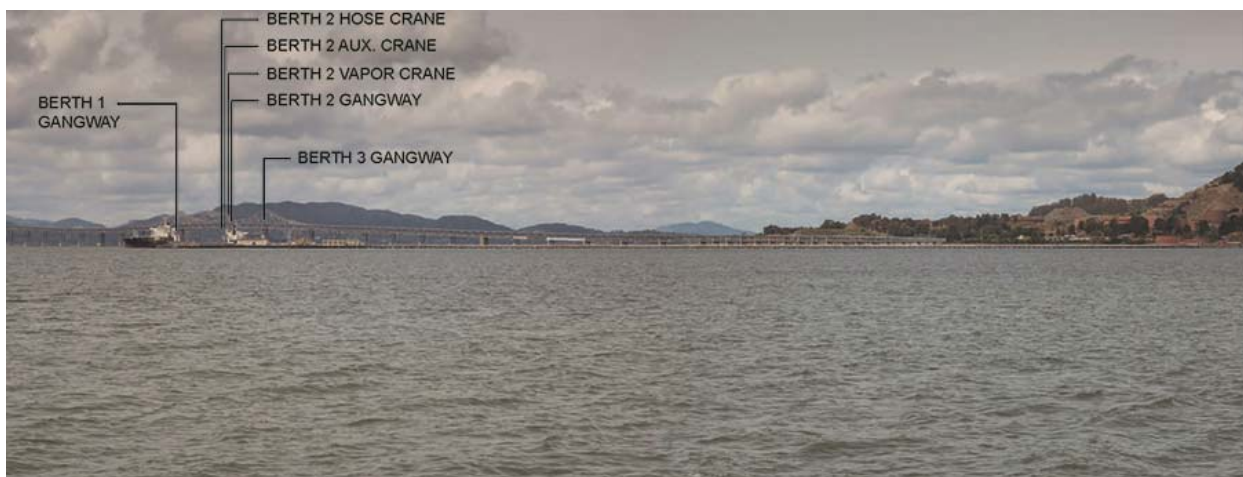


Figure 23: View 5 Labeled Simulation

Given the distance from the viewpoint to the Wharf structure in View 5 (approximately 6,700 feet), the proposed changes are extremely unlikely to be noticed. The two most prominent visual elements in this view are the vessels moored at the berths, and the structure of the Richmond-San Rafael Bridge on the horizon. The viewers from this viewpoint are primarily park visitors, but also neighbors and possibly individuals who work nearby.

Project Design Measures

Given the setting of the Wharf, the proposed new and upgraded structures would include certain design measures to minimize any visual impacts. These measures are as follows:

1. Structures above the Wharf deck would be painted in a neutral color, one that blends and complements the setting and also meets OSHA standards for the maritime industry.
2. To minimize any light or glare resulting from lighting, lights would be light-emitting diode (LED) and would be adjusted such that light is cast downward and confined as much as possible to the immediate work area. Lights would be shielded to prevent stray light.

Visual Impact Summary

The Project site is the Chevron Richmond Long Wharf located in the San Francisco Bay, south of the Richmond-San Rafael Bridge and west of Point Richmond, California. The purpose of the Project is to comply with MOTEMS (Marine Oil Terminal Engineering and Maintenance Standards), to improve the efficiency of the marine terminal operations, and to seismically strengthen the Wharf structure.

Five representative views were selected for study. Of the five views, two were determined to have high visual quality. The visual impact of the Project would not be of concern as the location of the Wharf precludes close views of the structure and its components and the scope and scale of proposed improvements are minor compared to the existing Wharf facility.

For all viewpoints, implementation of the proposed design measures (paint color, lighting direction and shrouding) should further reduce any visual impacts.